

## SAMARPAN THE TECHNOPHILIA CLUB REPORT

### Position Holders

S. No.	Faculty Coordinator	Co-Coordinator	Secretaries (2021 - 2022)	Joint Secretaries (2021 – 2022)
1	MS. Rachna Dhir	Ms. Manju	Deepanshu Vibhor Parul Aman Rahul	Vishal Aggarwal Satchit Sharma Hitarth Machama Rakshit Bajaj
S. No.	Faculty Coordinator	Co-Coordinator	Secretaries (2022 - 2023)	Joint Secretaries (2022 – 2023)
1	Ms. Rachna Dhir	Ms. Manju	Vishal Aggarwal Satchit Sharma Hitarth Machama Rakshit Bajaj	Aditya Pal Pankaj Sachdeva Himanshu Dedha Somya Verma Rishabh Gaur

### Activity List

S. NO.	Name of Activity	Date	Number of Participants
1	Decoding Encoders	30/06/2022	88
2	Escalade11.0	29/08/2022- 4/09/2022	12
3	NAAC Visit	10/10/2022- 12/10/2022	70
4	Induction 2022	20/11/2022- 21/11/2022	200
5	Reizo 2022	18/12/2022	250
6	Introduction to microcontroller	28/01/2023	60
7	Invictuse'23	13/02/2023- 15/02/2023	24
8	Techkriti 2023	22/03/2023 27/03/2023	5
9	Browsing Arduino Workshop	31/03/2023	86
10	D2F Workshop	26/04/2023- 27/04/2023	80

## Decoding Encoders

SAMARPAN The Technophilia successfully organized a One Day Online Workshop on DECODING ENCODERS - An opportunity to know about sensors which encode rotation angle and linear displacement. In this phase we covered the basic concepts and applications through Motor Encoders

The workshop on encoders offered a comprehensive exploration of these essential components in engineering. It encompassed diverse encoder types, from incremental to absolute, elucidating their operational principles and showcasing their role in calculating motor speed. Fundamental concepts like resolution, quadrature encoding, and signal conditioning were covered, emphasizing practical applications in robotics, CNC machinery, and more. Participants gained a profound understanding of encoders' significance, equipping them to effectively employ this technology across various industries for precise motion tracking and control.

**JC BOSE UST YMCA, FARIDABAD** | SAMARPAN THE TECHNOPHILIA | 1/4

Dean Student Welfare  
**SAMARPAN**  
 The Technophilia  
 Presents  
**A WORKSHOP ON DECODING ENCODERS**

30 JUNE, 2022 | Mode: ONLINE  
 1 PM Onwards | Open For All

CONTACT: SOMYA : 9810756689 | FACULTY COORDINATOR: MS. RACHNA DHIR, MS. MANJU  
 S'PHONE: 7015912643

ENCODER BASED PROJECT

**INCREMENTAL OPTICAL** 3/4

**ABSOLUTE** | **MAGNETIC**

**INCREMENTAL**

- Linear encoder is a sensor or transducer that measures linear movement of an object.
- Scale is one of the most important details. The accuracy and operation method strongly depend on its design.
- Signal source sends a pulse that passes through the scale.
- Treadmore is a receiver where the changed signal goes. It converts information about position into digital or analog signals.
- An Incremental Encoder generates a pulse for each incremental step in its rotation.
- With a single code track, it generates a pulse signal whose frequency indicates the velocity of displacement.
- However, the output of the single-channel encoder does not indicate direction. To determine direction, a three-channel encoder uses two detectors and a third code track.

**SAMARPAN THE TECHNOPHILIA** PRESENTS  
**DECODING ENCODERS**

2/4

- What are Encoders?
- What are the Types of Encoders?
- Why are Encoders used with Motors?
- What are the Real - Life Applications of Encoders?

**ON BASIS OF MEASUREMENT**

**MEASUREMENT**

**ABSOLUTE**

**LINEAR ENCODER**

**ABSOLUTE OPTICAL**

**COUNTING A**

**ENCODER USED IN CUTTING MACHINE**

4/4

What are Encoders?  
 An Encoder is an electrical mechanical device converts linear or rotary displacement into a or pulse signals.  
 Encoders transform mechanical motion into an electrical signal that is used by the control system to monitor specific parameters of the machine and make adjustments if necessary to ensure the machine operating as desired.

ON BASIS OF MEASUREMENT  
**LINEAR**  
 It is a sensor or transducer that measures linear movement of an object. The scale is one of the most important details. The accuracy and operation method strongly depend on its design.  
 Signal source sends a pulse that passes through the scale.  
 Treadmore is a receiver where the changed signal goes. It converts information about position into digital or analog signals.

**ABSOLUTE**  
 Absolute Encoders are feedback devices that provide position information by outputting a digital word or bit in relation to rotation.

**ABSOLUTE OPTICAL**  
 Photo sensor Code wheel (4 bits)  
 Serial to Parallel

**ENCODER USED IN CUTTING MACHINE**  
 Applications of Encoder: Measuring, Counting, Positioning, Velocity, Acceleration

## Escalade 11.0

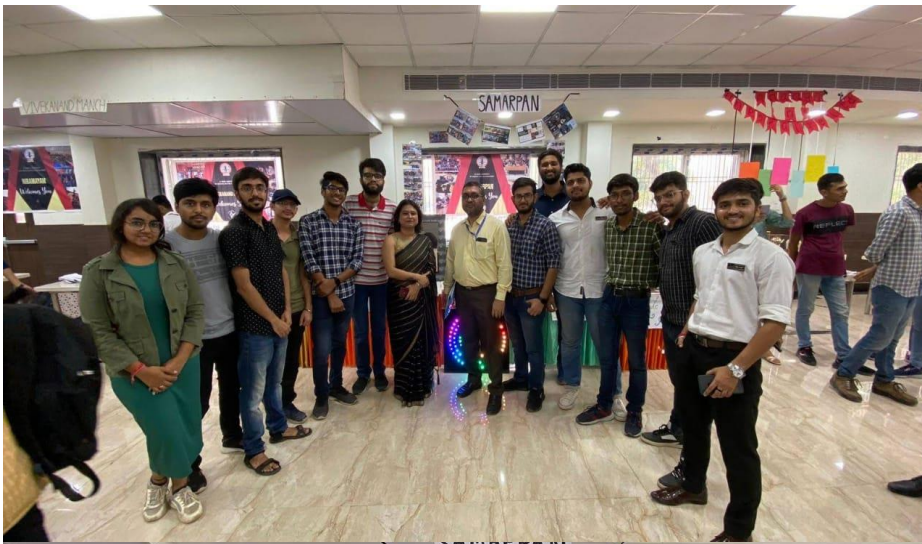
At IIT Guwahati's technical fest, Escalade, our team from the Samarpan Technophilia club excelled in the prelims, earning a spot in the mains. The preliminary round challenged us with a problem statement that required both electronic and mechanical expertise. Crafting innovative robotic solutions, we designed and assembled bots tailored to the task. The event buzzed with knowledge exchange and innovation, underscoring the collaborative essence of such gatherings. Representing our club, we not only showcased technical skills but also embraced the spirit of technological advancement that defines such events.





## NAAC Visit

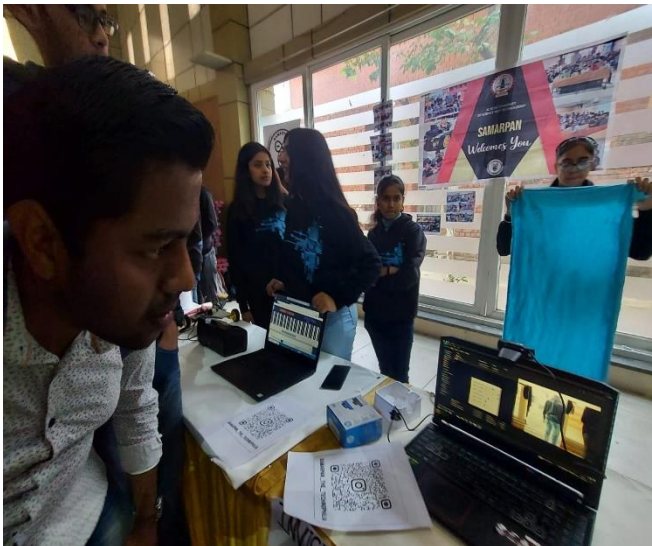
During the NAAC team's visit to our college, our club, Samarpan Technophilia, proudly exhibited an array of remarkable projects that captivated their attention. The innovative prowess of our members was on full display as we showcased projects such as the Smart Mirror, a fusion of technology and reflection; the Python Piano, translating code into musical melodies; the LED Cyclone, a dazzling light display; the Smart Watch, a testament to wearable tech ingenuity; the Python Clock, a blend of coding and timekeeping; and the Pi Braille, an innovation for the visually impaired. The NAAC team was treated to a showcase of diverse technological marvels, highlighting our commitment to pushing boundaries and embracing innovation in every endeavor.





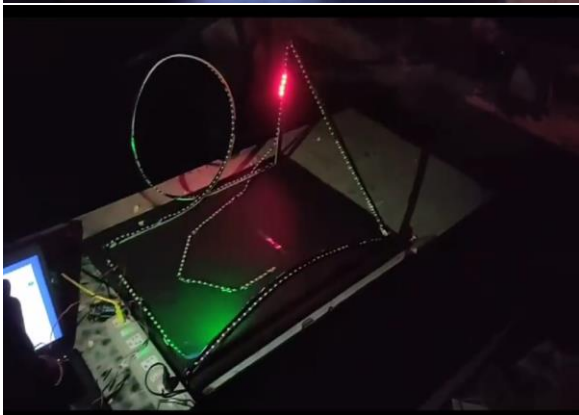
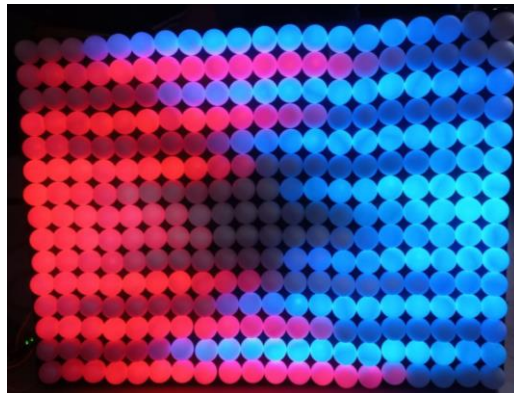
## Induction 2022

The Induction Program served as an excellent platform for us to introduce the array of innovative projects created by our club, Samarpan Technophilia, to the incoming freshers. As we welcomed the new members, we showcased an impressive lineup of projects that seamlessly integrated electronics and computer science. Projects like LED Race, where lights synchronized in an exciting visual display, the POV (Persistence of Vision) Display that crafted moving images in mid-air, and Python-based games that demonstrated the fusion of coding and entertainment, were presented in an interactive and engaging manner. This program not only informed the newcomers about our club's expertise in technology but also ignited their interest in exploring the realms of electronics and computer science, setting the stage for a dynamic learning journey ahead.



## Reizo 2022

Reizo, our much-awaited annual freshers' event, was a spectacular showcase of innovation and technology for the incoming first-year students. The event was an opportunity for us, the members of Samarpan Technophilia, to exhibit an impressive array of projects. One of the highlights was the LED Wall, a stunning array of 300 NeoPixel LEDs that offered complete customization, transforming visual possibilities into reality. Another captivating project was the Laser Game, where laser beams were reflected off multiple surfaces, creating an intricate challenge for players to navigate through without touching the lasers. These projects not only dazzled the audience but also exemplified our club's dedication to merging creativity with technology. Reizo succeeded in not only welcoming the newcomers but also inspiring them to explore the endless possibilities within the world of electronics and innovation.





## Introduction to Microcontroller

SAMARPAN The Technophilia is thrilled to unveil its inaugural offline workshop for 2k23, titled "INTRODUCTION TO MICROCONTROLLERS." This event promises an engaging array of activities, beginning with a comprehensive overview of microcontrollers, shedding light on the distinctions between microcontrollers and microprocessors, and delving into their real-life applications. Participants can anticipate an insightful exploration of the various types of microcontrollers and the diverse methods employed for coding these intricate devices. The workshop will also feature interactive hands-on projects, allowing attendees to put their newfound knowledge to practical use. Join us for an enriching experience that promises to demystify microcontrollers and ignite your passion for technology.



## Invictus'23

The SAMARPAN the Technophilia students participating in INVICTUS 23, the annual technical festival of Delhi Technological University (DTU), are set to embark on a thrilling and intellectually stimulating journey. Armed with their knowledge and expertise in the fields of robotics, coding, and electronics, these students will be competing against some of the brightest minds in the country in a variety of challenging events. From the adrenaline-fueled Robo Race and Road Rash to the intense battles of Robo Wars, the SAMARPAN team will be pushed to their limits and will need to utilize all their skills, creativity, and resourcefulness to emerge victorious. In addition to these exciting competitions, the students will also have the opportunity to network with like-minded individuals, attend workshops and seminars, and explore the latest innovations and advancements in the field of technology. With their passion, dedication, and determination, the SAMARPAN team is poised to make a lasting impact on the festival and the wider technical community.





## Techkriti 2023

The brilliant students of SAMARPAN the Technophilia participated in Techkriti 2023, the highly anticipated annual technical festival held at IIT Kanpur. The competition focused on embedded microcontrollers with the theme of ECDC, and our students showcased their technical expertise by building an innovative project on advanced home automation. The project boasted two-way communication using various protocols and was capable of operating without internet connectivity, providing a high level of convenience and accessibility.

The SAMARPAN team's project was highly impressive, securing the second position in the competition and a generous cash prize of INR 15,000. Their dedication and hard work were reflected in their project's design, which included an intuitive user interface and efficient communication protocols. The project's unique feature was its ability to function without a web page, making it a highly practical and versatile solution for advanced home automation.

Overall, the SAMARPAN team's participation in Techkriti 2023 was a great success, showcasing their exceptional skills and talent in the field of embedded microcontrollers. Their project on advanced home automation represents a significant step forward in the development of innovative solutions that prioritize convenience and efficiency in our everyday lives.








23<sup>rd</sup> - 26<sup>th</sup> MARCH 2023

# TECHKRITI

## CERTIFICATE OF MERIT

This is to certify that  
 Mr/Ms Aditya, prak.....  
 of IIT Kanpur, University of science and technology..... performed distinctly well  
 and stood..... 2..... in..... Embedded..... at  
 IIT Kanpur open 2023 conducted by Techkriti'23, the Annual  
 Technical and Entrepreneurial festival of Students'  
 Gymkhana, IIT Kanpur

 Anirudh Bandhopadhyay  
Festival Chairman

 Aniraj Jain  
Festival Coordinator

 Divyansh Jain  
Festival Coordinator














23<sup>rd</sup> - 26<sup>th</sup> MARCH 2023

# TECHKRITI

## CERTIFICATE OF MERIT

This is to certify that  
 Mr/Ms Tejas, Chaturvedi.....  
 of IIT Kanpur, University of science and technology..... performed distinctly well  
 and stood..... 2..... in..... Embedded..... at  
 IIT Kanpur open 2023 conducted by Techkriti'23, the Annual  
 Technical and Entrepreneurial festival of Students'  
 Gymkhana, IIT Kanpur

 Anirudh Bandhopadhyay  
Festival Chairman

 Aniraj Jain  
Festival Coordinator





 Divyansh Jain  
Festival Coordinator
















23<sup>rd</sup> - 26<sup>th</sup> MARCH 2023


# TECHKRITI








## CERTIFICATE OF MERIT





This is to certify that  
 Mr/Ms Ashuk, Aggarwal.....  
 of IIT Kanpur, University of science and technology..... performed distinctly well  
 and stood..... 2..... in..... Embedded..... at  
 IIT Kanpur open 2023 conducted by Techkriti'23, the Annual  
 Technical and Entrepreneurial festival of Students'  
 Gymkhana, IIT Kanpur

 Anirudh Bandhopadhyay  
Festival Chairman

 Aniraj Jain  
Festival Coordinator

 Divyansh Jain  
Festival Coordinator








23<sup>rd</sup> - 26<sup>th</sup> MARCH 2023


# TECHKRITI


## CERTIFICATE OF MERIT



This is to certify that  
 Mr/Ms Mananhu.....  
 of IIT Kanpur, University of science and technology..... performed distinctly well  
 and stood..... 2..... in..... Embedded..... at  
 IIT Kanpur open 2023 conducted by Techkriti'23, the Annual  
 Technical and Entrepreneurial festival of Students'  
 Gymkhana, IIT Kanpur



 Anirudh Bandhopadhyay  
Festival Chairman

 Aniraj Jain  
Festival Coordinator

 Divyansh Jain  
Festival Coordinator





## Browsing Arduino Workshop

A one-day offline workshop "Browsing Arduino" was organized by SAMARPAN The Technophilia in which we taught and gave hands-on experience with minor projects using Arduino and also how to program Arduino Uno for implementation of such projects. We also covered topics like Microcontroller and its types, Arduino and its types & specifications, Fading Led, Neo pixel led, Obstacle avoiding Bot and many more such topics which will help students to kickstart with making projects on their own. The event turned out to be a successful one, and was accompanied by a significant strength of interactive and enthusiastic audience.



The poster is for a workshop titled "BROWSING ARDUINO" presented by "SAMARPAN THE TECHNOPHILIA". It is organized by JC BOSE UNIVERSITY OF SCIENCE AND TECHNOLOGY, YMCA FARIDABAD, under the DEAN STUDENT WELFARE. The event is for "ARDUINO UNO" and is "OPEN FOR ALL". It is scheduled for 31st March, 2023, from 4 PM to 6 PM in Room G7. The poster includes a QR code to register, contact information for Pankaj (9996821094) and Himanshu (9773819027), and faculty coordinators Ms. Rachna Dhir and Ms. Manju. A call to action says "DONT MISS THE CHANCE FOR BUFFER ROUND!".



## D2F Workshop

SAMARPAN The Technophilia is organizing a comprehensive workshop on PCB Designing and Fabrication, titled "From Design to Fabrication: Mastering PCB Creation." This workshop is designed to equip students with practical knowledge and skills in every stage of PCB design, utilizing industry-standard software like Proteus and Altium. Participants will learn about the intricate steps involved in designing a PCB, preparing it for fabrication, selecting appropriate components, and mastering the art of soldering.

The workshop will emphasize hands-on learning, allowing students to actively engage in the process. They will have the opportunity to work on two major projects, thereby gaining valuable experience and enhancing their understanding of PCB creation. By the end of the workshop, participants will be proficient in designing and fabricating PCBs, enabling them to embark on their own electronic projects with confidence.

